

Claims

1. A process for the manufacture of a 2,3,5-trimethylhydroquinone dialkanoate comprising reacting ketoisophorone with an acylating agent in the presence of an indium salt as a catalyst.

2. The process according to claim 1, wherein the indium salt is indium trichloride or indium tris (trifluoromethanesulfonate).

3. The process according to claim 1 or 2; wherein the acylating agent is an acid anhydride, an acyl halide or an enol ester.

4. The process according to claim 3, wherein the acylating agent is a straight or branched chain alkanolic acid anhydride, preferably acetic, propionic or butyric anhydride; a straight or branched chain alkanoyl chloride, preferably acetyl, propionyl or butyryl chloride; or, an enol ester, preferably isopropenyl acetate or butyrate.

5. The process according to one or more of claims 1 to 4, wherein the molar ratio of the acylating agent to ketoisophorone is from about 1 : 1 to about 5 : 1, preferably from about 2 : 1 to about 3 : 1, most preferably about 3 : 1.

6. The process according to one or more of claims 1 to 5, wherein the amount of the indium salt used as the catalyst is from about 0.1 mol-% to about 2 mol-%, preferably from about 0.1 to about 1 mol-%, based on the amount of ketoisophorone.

7. The process according to one or more of claims 1 to 6, wherein the acylating reaction is carried out at a temperature of from about 0°C to about 140°C, preferably from about 25°C to about 90°C, more preferably from about 25°C to about 70°C.

8. The process according to one or more of claims 1 to 7, wherein the 2,3,5-trimethylhydroquinone dialkanoate obtained is converted into (all-rac)- α -tocopherol by transesterification to yield 2,3,5-trimethylhydroquinone and reaction of the latter with isophytol and/or phytol.

9. A process for the manufacture of 2,3,5-trimethylhydroquinone whereby the 2,3,5-trimethylhydroquinone dialkanoate obtained according to one ore more of claims 1 to 7 is used as starting material.

5 10. The process according to claim 9, whereby the 2,3,5-trimethylhydroquinone dialkanoate obtained by one ore more of claims 1 to 7 is transesterified to 2,3,5-trimethylhydroquinone.

11. A process for the manufacture of α -tocopherol and its alkanoates, especially of (all-
10 *rac*)- α -tocopherol and its acetate, comprising the reaction of ketoisophorone to 2,3,5-trimethylhydroquinone dialkanoate according to one or more of claims 1 to 7.

12. A process for the manufacture of formulations of α -tocopherol and its alkanoates, especially of formulations of (all-*rac*)- α -tocopherol and its acetate, comprising the reaction
15 of ketoisophorone to 2,3,5-trimethylhydroquinone dialkanoate according to one or more of claims 1 to 7.